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# Avalanche Notes

U.S. Forest Service  
Westwide Avalanche Network

APRIL 94

## Weather

April snowfall over the mountain West favored the southern sites. Alyeska, AK, recorded only 29% of normal. In the Sierra of California, Alpine Meadows received 92% of normal, but neighboring Squaw Valley got about 40% more than Alpine Meadows. A southern storm on April 25-30 boosted monthly snow totals considerably in Utah, Colorado, and New Mexico. Snowbird, UT, wound up with 83% of normal, while in Colorado, Berthoud Pass got 97%; Winter Park, 110%; and Gothic, 180%.

## Avalanche

Seven avalanche incidents were reported in April. Three of these occurred on the 4th-5th near Thompson Pass, AK, resulting in 7 people caught -- 4 backcountry snowboarders, 2 backcountry skiers, and 1 photographer at the World Extreme Skiing Championships.

On April 9, the season's first avalanche fatality to occur in Colorado took place on Coal Bank Pass in the San Juan Mountains north of Durango. A 37-year-old man was skiing alone when he apparently triggered a soft-slab avalanche that buried him. That night the victim was reported overdue, and his car was found parked along the highway. The next morning rescuers arrived with a search dog. The dog alerted, and a rescuer with a shovel found the victim. He was 2-1/2 feet beneath the surface of the avalanche debris, had been buried for 18-22 hours, and was dead from apparent suffocation. He was the 11th avalanche death of the 1993-94 season in the U.S.

On April 17, there was a near-miss avalanche in Big Cottonwood Canyon, UT. A party of 19 members of the Wasatch Mountain Club were practicing ice-axe self-arrest on a day that record high temperatures in the Wasatch had created a dangerous wet-snow instability. A large wet avalanche poured through a gulch, missing the climbers who scurried up the sides of the gully but burying 15 backpacks that had been left behind. Some of the packs were carried a quarter-mile and buried under 30 feet of debris. Most of the packs were eventually recovered, some found by dogs weeks after the avalanche. This incident proves what we've always suspected: packs can't swim in wet avalanches.

On May 5, on Mt. Hunter, AK, two climbers triggered a slab avalanche that swept them 1,000' down the West Ridge. Though not buried, both were badly injured, one suffering breaks in both legs. Help came from other climbers who dragged the victims on make-shift sleds to an airstrip, from where they were flown to an Anchorage hospital.

Eight avalanche incidents were reported in April and May, resulting in 15 people caught, 2 injured, and 1 killed.

#### Winter Summary

Table 1 lists U.S. avalanche statistics for the last 20 winters. The number of avalanches reported was slightly above average, but all accident categories -- people caught, buried, injured, killed, and property damage -- were below average.

Table 2 presents snowfall totals for the winter of 1993-94. Snowfall was below average throughout the mountain West, except for a few isolated sites in Colorado. Only Taos, NM, recorded well-above-normal snowfall.

Table 3 lists avalanche totals for Westwide reporting sites for 93-94.

#### ISSW'94

There's still time to register for ISSW'94 to be held at Snowbird, UT on October 30 - November 3, 1994. For a registration form, write to: ISSW'94, P.O. Box 49, Snowbird, UT 84092. See you there.

Table 1: Annual avalanche summaries for the U.S.

Winter	Avalanches	---- People ----				Vehicles		Avalanche Damaged			Estimated Property Damage	
		Ct	PB&B	Inj	Kill	Bur	Dam	Bldgs	Lifts	Misc	\$	255,000
1993-94	8,419	132	56	9	11	4	2	1	0	0	\$	255,000
1992-93	10,350	206	91	15	29	47	11	15	0	1		803,000
1991-92	5,522	155	67	20	23	13	8	0	1	2		70,000
1990-91	7,049	134	54	12	8	8	2	2	0	1		160,000
1989-90	6,122	141	58	16	8	14	8	3	0	3		150,000
1988-89	7,385	143	55	4	7	33	6	2	0	8		2,216,000
1987-88	5,338	148	50	13	8	7	5	2	0	25		650,000
1986-87	5,036	128	62	13	23	5	0	3	0	1		175,000
1985-86	7,437	102	49	11	15	18	7	6	1	3		150,000
1984-85	6,903	115	42	18	14	8	0	4	0	2		80,000
1983-84	7,161	122	42	20	14	27	7	4	0	6		140,000
1982-83	11,822	174	68	20	14	32	11	5	4	3		80,000
1981-82	10,102	212	78	16	19	77	25	10	8	8		1,700,000
1980-81	5,695	131	58	7	23	5	1	0	2	0		10,000
1979-80	10,669	136	44	9	6	34	16	7	1	19		650,000
1978-79	9,420	159	62	16	11	54	24	5	1	4		1,250,000
1977-78	11,151	155	71	16	17	19	5	5	3	2		300,000
1976-77	3,764	98	35	13	10	3	0	2	0	0		1,000
1975-76	7,905	177	81	15	17	13	6	1	1	1		100,000
1974-75	10,387	195	79	9	22	30	5	4	1	2		150,000
Average	7,882	148	60	14	14	23	7	4	1	5		455,000

U.S. FOREST SERVICE  
WESTWIDE WEATHER AND AVALANCHE NETWORK  
FORT COLLINS, COLORADO

APRIL 1994  
SUMMARY OF WEATHER AND SNOW CONDITIONS

AREA	SNOWFALL			WATER EQUIVALENT						SNOW DEPTH			TEMPERATURE			WIND SPEED AND DIRECTION					
	MAX			MAX						D			MEAN			AVG		6 HOUR		D	
	TOTAL	IN	D	TOTAL	IN	D	A	OF DAYS	A	MAX	T	MIN	Avg	MAX	MIN	Avg	FOR	PERIODS	FASTEST	A	
	FALL	AVG	HR.	T	WATER	HR.	T	GE	GE	GE	GE	MAX	T	MIN	Avg	MO.	GE	GE	HOUR	T	
	IN.	DEN	IN.	E	IN.	IN.	E	.1	.2	.5	1.0	IN.	E	IN.	IN.	DEGREES	F	15	20	MPH	DIR. E

CENTRAL AND SOUTHERN ROCKY MOUNTAINS

ARAPAHOE BASIN, COLO	48.7	.09	9	10	4.18	.62	10	16	8	2	0	76	8	61	70	37.4M	14.9M	26.1M	13.6M	35M	14M	34	290	14
BEAR LAKE, RMNP, CO	40.3	--	8	27	--	--	--	--	--	--	--	69	10	43	56	37.4M	26.3M	31.8M	--	--	--	--	--	--
BERTHOUD PASS, COLO	53.3	.08	11	26	4.15	1.02	26	12	9	2	1	75	8	55	65	35.6	12.9	24.3	16.1M	44M	25M	--	--	--
BRECKENRIDGE, COLO	52.1	.07	11	8	3.40	.90	5	8	7	2	0	82	8	56	67	35.0M	17.8M	26.4M	11.6M	26M	8M	31	280	15
COPPER MTN, COLO	52.0	.07	11	8	3.45	.70	8	9	5	3	0	67	8	45	54	43.5M	17.5M	30.5M	--	--	--	--	--	--
GOTHIC, COLO	76.5	.07	12	8	5.60	.89	8	14	11	3	0	67	10	40	52	41.2	21.3	31.2	--	--	--	--	--	--
KEYSTONE, COLO	43.2	--	9	8	--	--	--	--	--	--	--	68	8	46	57	42.1	17.4	29.8	9.9	11	3	--	--	--
VAIL, COLO	44.2	.08	14	8	3.41	1.11	8	8	5	2	1	80	10	58	68	39.4M	18.8M	29.1M	8.3M	7M	2M	20	340	14
WINTER PARK 1E, COLO	43.9	.08	12	26	3.48	1.14	26	8	5	2	1	53	8	33	43	44.2	18.5	31.4	--	--	--	--	--	--

INTERMOUNTAIN

SNOWBIRD, UTAH	58.0	.09	10	10	5.14	.92	10	13	11	4	0	72	11	24	47	47.9	28.4	38.1	16.4	63	44	--	--	--
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WEST COAST

ALPINE MEADOWS, CAL	30.5	.12	8	25	4.14	1.03	25	9	6	3	1	54	9	25	40	47.4	30.6	39.0	20.5	88	67	60	240	25
ALYESKA, ALASKA	21.1	.08	5	18	5.88	1.51	21	14	9	4	1	116	1	87	101	39.9	29.2	34.5	4.8	0	0	16	200	15

-- DATA INCOMPLETE OR MISSING

M-ONE OR MORE DAYS OF RECORD MISSING-IF AVERAGE VALUE IS ENTERED, LESS THAN 10 DAYS RECORD IS MISSING  
IF M IS ENTERED IN WIND SPEED COLUMN, LESS THAN 37 6-HOUR PERIODS ARE MISSING

GE--GREATER THAN OR EQUAL TO

U.S. FOREST SERVICE  
WESTWIDE WEATHER AND AVALANCHE NETWORK  
FORT COLLINS, COLORADO

APRIL 1994  
AVALANCHE SUMMARY

AREA	TOTAL A V A L S THIS MONTH	TOTAL A V A L S THIS WINTER	DATES OF F I R S S T T	NUMBER OF DAYS WITH MAX IN ONE A DAY T NO. E	NUMBER A V L A S F L S S L NUMBER	TYPE OF AVALANCHE A R A I U F R A C A R D T T NUMBER	FRACTURE LINE HEIGHTS IN FEET L H S O W O S E S E E NUMBER	VERTICAL DESCENT IN FEET GE GE GE 200 500 1000 ---NUMBER--- FEET	AVALS ACROSS MAJOR ACCESS ROADS NO.
	NO.	NO.							

CENTRAL AND SOUTHERN ROCKY MOUNTAINS

ARAPAHOE BASIN, COLO	13	104	10	21	6 21	4	0	7	6	0	6	7	0	11	4	0	13	6	1	1000	0	
ASPEN SNOWMASS, COLO	14	2	8	7	4	4	0	14	0	0	0	14	0	0	1	0	0	11	0	0	400	0
BERTHOUD PASS, COLO	5	72	14	21	2 15+	3	0	0	5	0	4	0	1	3	0	0	5	4	0	500	0	
BRECKENRIDGE, COLO	49	213	2	30	12 30	12	0	48	1	10	39	0	0	18	0	0	47	11	0	600	0	
GOTHIC, COLO	60	246	2	30	10 2	15	0	0	60	0	2	15	43	11	3	0	60	47	17	1800	0	
LOVELAND BASIN, COLO	9	51	8	30	3 30+	3	0	9	0	9	0	0	0	9	0	0	9	0	0	440	0	
VAIL, COLO	5	24	4	8	3 8	2	0	5	0	0	4	0	1	2	0	0	3	0	0	200	0	
WINTER PARK S.A., CO	8	40	4	14	3 14+	3	0	0	8	3	5	0	0	3	0	0	7	1	0	900	0	

INTERMOUNTAIN

SNOWBIRD, UTAH	61	856
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WEST COAST

ALPINE MEADOWS, CAL	39	520	9	26	35 9	3	0	39	0	0	39	0	0	0	0	0	33	6	0	600	0
ALYESKA, ALASKA	49	289	2	22	20 21	8	0	35	14	1	17	19	12	31	1	0	48	42	23	1800	0
CRYSTAL MTN, WASH	66	563	8	9	52 8	2	0	56	10	0	27	7	32	1	0	0	65	36	1	1000	0
STEVENS PASS, WASH	44	898	7	9	24 8	3	0	44	0	0	36	0	8	0	0	0	0	0	0	0	0

-- = DATA INCOMPLETE OR MISSING

GE = GREATER THAN OR EQUAL TO

+ = ALSO OCCURRED ON OTHER DATES

Table 2: Snowfall totals (inches) for Westwide sites for 1993–94

Site	ST	Nov	Dec	Jan	Feb	Mar	Apr	Dec–Mar	% Norm	Nov–Apr	% Norm
Alyeska	AK	70	129	76	8	120	21	333	90%	424	85%
Eaglecrest	AK		21	70	27	103		221			
Alpine Meadows	CA	26	54	28	126	16	31	224	84%	281	83%
Heavenly Valley	CA		27	14	73	14		128			
June Mountain	CA			19	66	39		124			
Mammoth Mountain	CA				18	70	26	114			
Squaw Valley	CA		36	21	107	17	23	181	79%		
Sugar Bowl	CA	48	56	33	122	14		225			
Arapahoe Basin	CO		13	61	36	36	49	146	70%		
Aspen Highlands	CO	32	25	19	46	25		115	70%		
Aspen Mountain	CO		42	33	59	34		168	105%		
Bear Lake, RMNP	CO	41	18	39	54	38	40	149		230	
Beaver Creek	CO	66	52	44	67	37		200	96%		
Berthoud Pass	CO	47	55	70	45	58	53	228	112%	328	107%
Breckenridge	CO		22	53	28	39	52	142	70%		
Copper Mountain	CO		35	60	50	44	52	189	109%		
Crested Butte	CO		19	13	60	15		107	66%		
Eldora	CO		30	37	27	50		144			
Gothic	CO	47	30	17	97	35	77	179	78%	303	94%
Keystone	CO	26	24	37	30	30	43	121		190	
Loveland Basin	CO	55	37	78	52	58	43	225	100%	323	96%
Purgatory	CO		28	13	82	26		149	83%		
Red Mountain Pass	CO		35	42	67	48		192	93%		
Steamboat	CO		59	50	52	23		184	77%		
Sunlight	CO		20	19	51	20		110	63%		
Telluride	CO		34	36	58	27		155	86%		
Vail	CO	49	38	58	51	30	44	177	68%	270	
Winter Park S.A.	CO		65	61	63	64		253	101%		
Winter Park Town	CO	36	36	40	30	44	44	150	101%	230	102%
Wolf Creek	CO	47	41	32	97	35		205	77%		
Schweitzer Basin	ID		54	50	62	25		191			
Sun Valley	ID		14	22	53	4		93	67%		
Big Mountain	MT		58	78	69	18		223	92%		
Big Sky	MT		50	39	35	24		148	77%		
Bridger Bowl	MT	21	77	48	51	34		210	93%		
Taos	NM		38	44	71	68		221	128%		
Mt. Hood Meadows	OR		66	69	110	44		289	89%		
Alta	UT	39	53	111	130	47		341	96%		
Snowbird	UT	39	55	97	113	37	58	302	91%	399	85%
Crystal Mountain 1	WA		21	31	166	46		264	111%		
Crystal Mountain 2	WA		42	45	107	51		245	83%		
Mt. Rainier—Paradise	WA		84	90	168	103		445	97%		
Snoqualmie Pass	WA		58	52	118	45		273			
Stevens Pass S.A.	WA		70	54	135	57		316	99%		
Stevens Pass US 2	WA		87	58	132	63		340			
Grand Targhee	WY		62	57	69	13		201			
Jackson Hole	WY		62	74	94	15		245	88%		

Table 3: Avalanche totals for the winter of 1993-94

Site	ST	Avalanches
1. Alta	UT	905
2. Stevens Pass	WA	898
3. Snowbird	UT	856
4. Squaw Valley	CA	836
5. Crystal Mountain	WA	563
6. Alpine Meadows	CA	520
7. Bridger Bowl	MT	392
8. Aspen Snowmass	CO	345
9. Alyeska	AK	289
10. Gothic	CO	246
11. Breckenridge	CO	213
12. Red Mountain Pass	CO	190
13. Aspen Highlands	CO	185
14. Mt. Hood Meadows	OR	165
15. Big Sky	MT	164
16. Kirkwood Meadows	CA	161
17. Jackson Hole	WY	152
18. Telluride	CO	142
19. Arapahoe Basin	CO	104
20. Solitude	UT	101
21. Crested Butte	CO	96
22. Taos	NM	91
23. Big Mountain	MT	85
23. Wolf Creek	CO	85
25. Sugar Bowl	CA	78
26. Berthoud Pass	CO	77
27. Loveland Basin	CO	59
27. Snoqualmie Pass I90	WA	59
29. Stevens Pass US 2	WA	50
30. Heavenly Valley	CA	49
31. Winter Park	CO	40
32. Monarch	CO	34
33. Grand Targhee	WY	30
34. Lizard Head Pass	CO	25
35. Vail	CO	24
36. Colorado Hwy 110	CO	19
36. Copper Mountain	CO	19
38. Sun Valley	ID	18
39. Urad-Henderson Mine	CO	17
40. Aspen Mountain	CO	14
41. June Mountain	CA	10
41. Steamboat	CO	10
43. Mt. Rainier N. P.	WA	1
43. Sunlight	CO	1
43. Teton Pass	WY	1